1. Circular Primes

Program Name: CirPrimes.java Input File: cirprimes.dat

A circular prime number is an integer that is a prime number for each rotation of the digits that form the integer. A rotation is created when the right-most (or last) digit in the number if moved to become the left-most (or first) digit in the number while all the other digits all the other digits shift over to make room but maintain their order. For example, the integer 719 is a circular prime because each of its three rotations, 719, 971, and 197, is a prime number.

You are to write a program that will print all of the circular primes that fall between the two given integers.

Input

The first line of input will contain a single integer `n` that indicates the number of pairs of integers to follow. Each of the following `n` lines will contain two integers in the form `F L` ($100 \leq F < L < 1{,}000{,}000$).

Output

For each pair of numbers input, you will print, in numerical order and one per line, all of the circular primes within the range given. Print a blank line at the end of each set. Do not include the integers `F` or `L`. If there are no circular primes within the range given, then print the word `NONE`.

Note: A blank line at the end of the last set is optional.

Example Input File

```
3
1000 2000
3000 5000
200 300
```

Example Output to Screen

```
1193
1931

3119
3779

NONE
```